

## **ACTION RESEARCH IN HIGHER EDUCATION FOSTERING TRANSITION TOWARD A SUSTAINABLE ECONOMY: TRAININGS IN ECOPRENEURSHIP AT THREE BULGARIAN UNIVERSITIES**

**Anna Varbanova**

*University of Sofia (Bulgaria)*

**Abstract.** This paper discusses the possibilities for higher education (HE) policies to be strategically assured upon the triple helix between university, local authorities and businesses providing the proper social context as a resource for authentic educational content and learning environment. The study is based on the application of Action Research methodology in the framework of the applied project of the Institute for the Study of Societies and Knowledge at the Bulgarian Academy of Sciences, on the example of ecopreneurship training, supported by the German Federal Environmental Foundation, as an experiment regarding our central research question: How is it possible to foster the transition toward sustainable economy through education, on the example of such transdisciplinary course in higher education? In particular, we involve different stakeholders (university teachers, students, university administration and green businesses) in order to improve educational outcomes, and especially, to increase the level of competence of academic staff and students to teach, learn, explore, and transfer new fields of knowledge, experience, and attitude toward sustainable economy. We operationalize that through competencies (with their nuclei – knowledge, skills, and attitudes) as a didactical instrument. During the process our cases reveal the need of transdisciplinary learning through especially designed close to ‘real-world’ settings. Thus, creating free space for experimentation and mutual learning we plan on achievable and product-oriented outcomes, which gives confidence and motivation for further learning and involvement in the field of sustainable economy.

*Keywords:* higher education; pedagogical input to fostering sustainable development; social context as educational content by design

### **1. Introduction**

Bulgarian society has been in a transition towards democracy and market economy for the last 27 years. Since 2007, Bulgaria is a full-fledged member of the European

Union (EU). Having a full set of established democratic institutions and free market economy, it is still one of the poorest countries in Europe, though it made significant progress, as recent studies have asserted (World Bank, 2016). Nevertheless, it faces tremendous challenges, as its demographic situation is especially disturbing. World Bank experts conclude that ‘Bulgaria is undergoing both a rapid demographic transition and a significant structural shift in its economy.’ (Ibid., 5) The European Commission (EC, 2014) identifies the long-term aging, migration, and inactivity as main risks for Bulgaria’s employment and growth. Besides the ongoing ‘brain drain’ of young professionals, Bulgaria has the second-highest rate in the EU of youth not in employment, education, or training, the so-called NEET (World Bank, 2016).

Apparently, the Bulgarian case is indeed interesting to be studied. One of the central failures over the last years consisted in not being able to sustain and transform the national innovation system, which has been gradually built around the state-owned industries in the past. The rapid loss of their international market shares and access to financing coupled with the nontransparent process of privatization and market liberalization had as a result almost a complete retreat from applied science research and following brain drain of highly qualified professionals abroad. The triple helix between state, universities and businesses were distorted and broadly deinstitutionalized.

Put in that difficult and challenging situation; the Bulgarian HE is struggling to achieve international competitiveness and to close the gap at least to the European average. There is only one Bulgarian university – the University of Sofia, figuring in the top 700+ worldwide according to QS World University Ranking 2016<sup>1)</sup> and no single Bulgarian university within the top 500 in the so-called Shanghai Ranking 2016 (ARWU – Academic Ranking of World Universities) (<http://www.shanghairanking.com>).

Obviously, the HE in Bulgaria needs fundamental reforms and strategic vision to bring it to a new path of development. The current demographic crisis could be such a window of opportunity to bring innovations and sustainable development at the core of its societal mission.

## **2. General research questions**

Our starting point is the general question: How is possible to foster sustainable innovations and ecopreneurship within the HE in Bulgaria? And, in particular, how could we involve different stakeholders (faculty members from various academic areas/environments, university administration, students and local sustainable entrepreneurs) into the educational process through introducing and transferring this new field of experience and knowledge? We came up with the assumption that, similar to the idea of the Multi-Level-Perspective (MLP) approach (Rip & Kemp, 1998), we have to first focus on niche development and on the creating of free spaces for experimentation and *mutual learning* of the involved stakeholders.

We want not only to open up the ‘black box’ of the ‘social-technical regime’ of Bulgarian HE, with its specific ‘path-dependencies’, its existing institutionalized processes of knowledge transfer, decision-making, infrastructures, relationships and networks with businesses and public authorities, and of course everyday practices and academic values and principles. Based on the analysis and experiences at three Bulgarian universities, we also want to propose concrete actions for improving their specific situation. A window of opportunity for such experiment is the perceived need for the university communities to update their approach to attracting students and designing their courses of study adequately to the current economic, social and demographic situation.

We pursue this goal in applying the so-called Participative Action Research (PAR) and introducing backward designed 3-month trainings in ecopreneurship for students in these universities (one in a small town with a traditional economics HE, one in a mid-sized town with a technical background, and one in a big city with a university specialized in food technologies).

### **3. Background of the project**

The project “Training for Ecopreneurship at Three Bulgarian Universities” has been implemented (2015 – 2016) with the financial support of the *German Federal Environmental Foundation* (Deutsche Bundesstiftung Umwelt) in the framework of the international cooperation for projects of an innovative character and with an exemplary model for the target country. The *Institute for the Study of Societies and Knowledge at the Bulgarian Academy of Sciences* (ISSK-BAS) is supported in the project by its German partner, the *Institute for Energy and Environmental Research* (Institut für Energie- und Umweltforschung, IFEU, Heidelberg). Beneficiaries and associate partners in Bulgaria are the *University of Ruse*, the *Academy of Economics, Svishtov*, the *University of Food Technologies, Plovdiv*, and the *Technology Centre, Sofia* – an organization for technology transfer and advocacy of German businesses in Bulgaria.

The specific project objectives are to introduce educational modules for so-called ecopreneurship (sustainable entrepreneurship) at three Bulgarian universities, to establish at least two consultancy centers (in South: Plovdiv or Sofia and in North Bulgaria: Ruse or Svishtov), and to register at least six start-ups of young scholars.

### **4. Theoretical considerations**

#### **4.1. Ecopreneurship as a process and an educational module**

In our understanding, sustainable entrepreneurship, or ecopreneurship, is a process of establishing innovative, environmentally oriented businesses that recognize, create and utilize the market opportunities of eco-innovation (Schaltegger & Petersen, 2001). Such actions, inspired by environmental values, beliefs, and attitudes, meet the needs and increase the quality of life of the (future) societies. We also distinguish the term ecopreneur of what *it is not*, as there are

four other basic positions concerning sustainability (characterized according to their degree of environmental orientation of a company's core business or of the market impact of their businesses – both lower than of the 'ecopreneur'): environmental administrators, environmental managers, 'alternative activists', and 'bioneers' (Schaltegger, 2002: 45). Ecopreneurs may be seen in a Schumpeterian sense as 'creative destroyers,' who truly abolish inherited production patterns and consumption practices, and thus break paths.

From this perspective, we should find a connection between this desirable economic behavior and the university institution, seen in the light of the 'second modernity' and the concept of lifelong learning (Boyadjieva, 2006). It is also necessary not only to integrate entrepreneurial practice but also to include sustainability as a normative concept (Gerlach, 2003).

In the meantime, there is an on-going extensive academic discussion about the practical ways to introduce ecopreneurship modules into the curriculum of HE (Zampetakis, Thrassyvoulos & Moustakis, 2006). Sustainable entrepreneurship education should also address the needs and interests of the students (Zampetakis, Thrassyvoulos & Moustakis, 2006: 136), incorporating their perception and assessing their competence level regarding both concepts – entrepreneurship and sustainability. One way of doing this, introduced by Lans et al. (2014), is similar to our understanding of operationalizing the interdisciplinary content through the applied competencies needed for future practice. Moreover, in a specially organized workshop, we would let the stakeholders themselves identify and prioritize the set of competencies they consider necessary in the current context.

Another general consideration is that we not only target behavioral change (behavior could be changed simply through market, bureaucratic or other types of incentives alone) but, through the educational process, we aim at changing long-term attitudes and values as well. We assume that adapting one's belief systems (values, attitudes and behavior) is a complex process, which is close connected with the ability and the willingness for constant learning and improvement. From the perspective of social psychology, we anticipated that a person's actions and behavior are highly correlated with his/her attitudes and beliefs, the compliance with the subjective norms and the perceived behavioral control (an individual's perceived ease or difficulty of performing the particular behavior) (Petkova, 2003).

We aim to invoke positive attitudes, communicate sound subjective norms, and enhance self-efficacy perception through the development of specific competence needed to achieve the desired outcomes. We see competencies as a means to reach the goals set by one's belief system. Thus, further below, we explain why we choose to employ competencies as our operative concept.

If we only talk about knowledge, the notion of *knowledge* itself might remain something amounting to the possession of a set of data or information. Such an understanding of the concept seems far too narrow. In educational sciences and practice,

we refer to knowledge as a state of understanding and an individual construct (Delibaltova, 2004: 91); to taxonomies as a systematised hierarchy of educational objectives which we view as ‘knowledge gradients’; and to transferring or reconstructing knowledge into process-suiting educational contents. Beyond knowledge itself, we distinguish learners’ cognitive abilities and valuable experience, as well as their future skills for steering in various life or professional situations, variable patterns for extracting the knowledge of long-term memory, their motivation for applying the knowledge they have acquired, and the choices a true person of knowledge is able to make. One would call such person *competent*, or having *competence* (and our instrument to view that would be the *competencies* or a *competency model*). Therefore, as we see it, the transfer of knowledge does not necessarily lead to development.

We assume also that learning is not limited in time or to a single institution. It is not only an eight-to-five duty of another subsystem. Education is for life. We understand it as a permanent development and inquiry. The attitude to learning is a constitution for change and renewal. In contrast, any training in a particular educational program or course has a narrow time window, limited resources, and is very dependent on the context. When designing the course, we bear in mind two things: on the one hand, we connect and stimulate the immanent attitude to learning and discovering; on the other hand, we construct the process of a technologically planned transformation from A-condition to B-condition, which we call a realization of learning objectives, or goals of the training.

Furthermore, we see transition and innovation (for sustainable development) also as a state of mind, not merely a subject of expertise. This, again, comprises readiness to change, to learn, to innovate, but (in this case) not at the individual level but as a community (passing this attitude on to the future generations). It is the attitude to create, to challenge, and constantly learn; it compels one to be conscious of the society and the environment, of the whole. The competencies, therefore, as an instrument in the curriculum are a knowledge-based manifestation of certain values. The development of such competencies is a subject of a purposefully designed educational process, whether formal, non-formal or at work, and a ‘deliberate conversion of socially significant values into individual mental realities’ (Andreev, 2015: 59). Therefore, we have tried to design the educational process around competency-based goals, deeper experience-based understanding of main concepts, practically oriented tasks, real-world relevant learning events, and products that are significant to the learner and yet standard, in a climate of teamwork, creativity and mutual learning.

## **4.2. Educational design**

### *4.2.1. System approach*

Whether educational or other, design is above all the creating of objects, processes or systems. This means that, even when reduced to simple engineering solu-

tions of formalized problems, it is an act of creativity. Moreover, this creation addresses the user of the designed 'product'. It attempts to address the problems and needs of its 'user' in a satisfactory manner. Educational design, instructional design, pedagogical design, training design, or course design are used synonymously. By definition, they all mean designing or programming a *process*, not a separate or distinct static object. Constructing it as specific activities (training, learning, assessment and other events) and artifacts of the teaching-learning unity is not reducible to answering a simple question such as 'what do we do in class?', nor does it suggest one-way transference of 'instructions' to the minds of learners. It is a scientifically based mutual coordination of didactical elements leading to complex, appropriate, satisfactory and effective solutions to the process. When it comes to designing an educational or any other type of process, it is also subject to dynamic co-designing by those who implement it as they meet the complex contexts, ridden with not clearly foreseeable elements, including objective or subjective parameters; cultural, scientific and regulatory contingencies; unique infrastructure, communication schemes, various resources gained through practical and applied experience; and most of all, including living people of different generations and in different interrelationships (Varbanova, 2013: 10). Consequently, the act of creative design relies on a certain amount of imagination and intuition.

Composing all the elements (=system components) in the designed construct is also called *Instructional Systems Design* as an inquiry of planning and creating various situations which constantly support, lead, stimulate, provoke, widen and improve toward perfection in order to achieve more effective, purposeful, systematic, socially and personally meaningful learning (Dimova, 2013: 15-16). These system components are the actual didactical realities of the educational process; they are; in random order: learning objectives, learning activities (as central events of interaction), the integrity of these activities, and their compliance with the desired outcomes (goals and constraints) and with the authenticity of learning tasks and contents; analysis of the students (their characteristics, needs, attitudes, entry level); analysis of the environment and the infrastructure; management of roles and relationships; assessment and evaluation (criteria, principles, indicators, and tools); forecasting improvements and updates (mechanisms for reflection, feedback, and redesign), etc. Viewed as an open social system of various levels, the process of education is subjected to a system approach, characterized as *organized complexities* (Banathy, 2010: 95). And since there is no single-approach model for designing instruction, we refer to system-approach models (Banathy, 2010: 21).

#### 4.2.2. Backward design

One of these models was elaborated by Grant Wiggins and Jay McTighe and is called *Understanding by Design*<sup>TM</sup>. Its logic consists in the backward-design approach following a three-staged model: 1) Desired Results; 2) Assessment Evidence; 3) Learning Plan. Designing backwards has been previously discussed by

Tyler in 1948, Gagné in 1977, Mager in 1988, Spady in 1994, and Anderson-Krathwohl in 2001 (Wiggins & McTighe, 2011: 6-7). The learning objectives (=expected results) in the Wiggins-McTighe approach are set at different levels: established goals or standards, transferable long-term and beyond-education results, meaning (=self-constructed understanding and essential no-single-right-answer open-ended questions) and acquisition (=knowledge and skills) (Wiggins & McTighe, 2011: 13 – 22). Thus, our understanding of ecopreneurship refers particularly to the level of meaning-making in setting the desired results and has a substantial value for developing the curriculum; and as content, we see the so-called ‘study materials’ as a means to achieving the goals, not as the actual goal. Wiggins and McTighe talk about ‘deepening student’s understanding’ and describe the term understanding as multifaceted. Transferable goals as first to be defined mega-goals could be seen as competencies for and beyond the field of sustainable entrepreneurship. We accept the philosophy behind their framework mainly because it constantly keeps an eye on end results and seeks their manifestation within the process, calling for the integration of formative assessment and real-world issues.

#### *4.2.3. Inter- and transdisciplinarity in HE*

Nevertheless, before applying any model for planning the course units, the substantive specificities of the training require a certain approach to design. As there are various models for instructional design, there are various approaches to developing a curriculum as well. We tried to operationalize Susan Toohey’s classification of approaches to designing courses in HE (Toohey, 1999: 45), which refers to the main indications (=didactical realities) in which they differ from one another, which are the following: view of knowledge, the essence of the process of learning and the roles of teachers and students, the learning goals and how they are expressed, the way the content is chosen and organized, the purpose that the assessment serves and methods used, and the kind(s) of resources and infrastructure that are needed. Therefore, the approaches are: Traditional or discipline-based, Performance or systems-based, Cognitive, Personal relevance approach, and Socially-critical approach. There are many aspects in each of them relevant to ecopreneurship training, but a closer look reveals that no single approach is completely satisfactory.

We meet a similar challenge regarding the structuring of the cognitive units, which transcend the disciplinary boundaries. We fully agree that the disciplinary approach is essential at the school level, where interdisciplinary connections are resolved at the level of the state standards. Nevertheless, the multi- and transdisciplinary integration in education have a more complicated status (Andreev, 1996: 386), and for our case (ecopreneurship at HE level), is a subject of specific synthesis of holistic type, where it is assumed any scholar monodisciplinary content should be disregarded. Is such a measure useful at all? In his important paper “What to do next: Strategies for change” William H. Newell presents his view on interdisciplinarity for the American HE in particular, arguing that the disciplines

and interdisciplinary studies need each other and neither can stand alone: ‘A real possibility exists (...) for establishing a symbiotic relationship between the reductionist academic disciplines and holistic interdisciplinary study. (...) At the level of the individual, the narrow foci of disciplines have proven dangerous as well as ineffective. They have contributed to the sense of isolation and communal detachment that increasingly characterizes individuals in modern societies’ (Clark & Wawrytko, 1990: 253). Obviously, socially isolated individuals with a strong sense of seclusion would not turn into continuously learning professionals, ecopreneurs, or environmentally concerned consumers, builders of a sustainable future for the generations to come. How could one operationalize and compose these different, and yet complementary, doctrines in the construct of a single design?

Therefore, the multi- and transdisciplinary essence of ecopreneurship is leading us to a certain epistemological mismatch with the traditional disciplinary discourse in HE. Therefore, a more innovative educational technology within the current project proposes a combined approach to designing the process, which we apply in the PAR.

## **5. Methodology**

### **5.1. Action Research**

AR was initially applied by Kurt Lewin (Lewin, 1944) to present the interdependence of research, training and action in producing social change. He described it as ‘a comparative research on the conditions and effects of various forms of social action and research leading to social action’ (Lewin, 1948: 202 – 3), which uses ‘a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action’ (Lewin, 1948: 206).

Some authors differentiate AR from Participatory Action Research (PAR), depending on the degree of involvement of the ‘observed’ as co-researchers (Bergold & Thomas, 2012), and set certain preconditions for practical implementation, such as, for instance, the need for so-called ‘safe space’ – a communicative space that researchers must provide for the generally ‘marginalized groups, whose views are sought, and whose voices are rarely heard’ (Bergold & Thomas, 2012: 7).

Cohen et al. (2005) emphasize AR as a research strategy specially relevant for curriculum developers and teachers in their specific contexts and with respect to various considerations – locational, ideological, historical, managerial, social, etc. ‘Furthermore it accords power to those who are operating in those contexts, for they are both the engines of research and of practice. In that sense, the claim is made that action research is strongly empowering and emancipatory in that it gives practitioners a “voice”’ (Cohen, Lawrence, & Morrison, 2005: 31).

In our understanding and approach, we tend to be closer to the view that is more related to the PAR concept, as we would involve in collaboration the project participants, especially the young faculty members; we try to develop the research

in a way suited to their needs and their willingness for active participation. We apply it in a more constructive way, although we try to differentiate among its commonly used phases (diagnostic, intervention, analysis and recommendations, action plan, and follow-up evaluation).

*5.1.1. The PAR: procedure and methodological repertoire*

In the *diagnostic phase* we have started with secondary research to capture the initial problem settings twofold – to approach the general situation in Bulgarian HE on the one hand and, on the other hand, to map the existing ecopreneurship businesses as well as sustainable development educational practices. We have also conducted an online-survey among students from our target universities to capture their initial expectations and general attitudes towards ecopreneurship training as part of their HE.

Afterwards, an expert workshop was organized, which included representatives from different universities, businesses and environmental organizations as well as experts representing the leading project partner IFEU (Heidelberg). The workshop was focused on formulating a working definition of ecopreneurship and on developing a model of competence of a future Bulgarian ecopreneur. This model was further developed into a competencies-based model of learning objectives and standards for their assessment – in the framework of the backward-design approach, following the stages of the Understanding by Design scheme, and on the basis of the initial draft-curriculum and resources proposed by the German partners from the IFEU.

As part of a workshop (during training the trainers), we conducted a group discussion on the role, principles and values of the Bulgarian university today and its institutional settings, followed by in-depth interviews with the involved stakeholders to capture their interests and interpretations of our initial assumptions. We developed the macro-design of the training in order to accomplish our experimental intervention in academic setting at the three locations. It is particularly important that our theoretical grounds were operationalized in designing the training, which started during the diagnostic phase and was completed with the workshop of training the trainers (as a boundary between the two phases). The micro-design and development of the course for each of the four groups (two teams in one of the universities taught two groups at a time) continued as our blue-print plan and met the real educational contexts as well as its actual participants.

During the phase of *intervention*, the trainers, who were local faculty members, became co-researchers. Designing the course was more or less a ‚black box‘ to them as they received the curriculum as a complete product. They carried it out while supported in a monitored process. Further on, we will pay a little more attention to designing the intervention. After the trainings, the process was reflected on several levels: as feedback from students - a questionnaire and participant observation of the fifth phase of their training during students' showcases, in which they present themselves through a project/learning product (please, see the phases in 6.3.); as

a reflection among the teams from the same university, as a joint reflection of the teams, and as a counter-reflection within their academic communities.

Moreover, during the *analytical phase* this reflection met local communities where the training was presented and discussed in the light of the Bulgarian University Ranking System, and its various indicators, as regards the actual microclimate viewed through the eyes of the participants and experienced by them in the educational process, the present institutional context, their discipline subject specificity and the traditional ways of designing university courses. The participants were among the faculty staff and PhD students – a sampling with a wide range in terms of age, teaching experience, academic degree, and managerial commitments in the university. We adapted the application of the so-called future workshop method fostering a democratic expression of the staff problems and worries as experienced in everyday practice, seeking to identify system bugs, to form a joint vision of the future development (related to teaching courses), and to seek particular action proposals that the faculty members and administration can implement themselves at local level. The initial analysis of the working climate in the university was followed by science cafés, focus group discussions, mutual evaluation of adult-instructor competencies and semi-structured interviews.

Although the *recommendations* overlap in many respects, *action plans* for various institutional locations and communities differ. The future *follow-up* activities will focus not only on the implementation of the developed action plans but will also support the local efforts to establish and run interdisciplinary and practice-oriented initiatives and structures which implement the different aspects of the broad field of transition to sustainable development and ecopreneurship. Thus, we expect to overcome some of the identified deficits of the socio-technical regime of Bulgarian HE.

#### *5.1.2. Inner logic of the study: research positions and roles*

The inner logic that our research follows (beyond the procedure events) is based on the classical Didactical Triangle, which outlines the complex *teacher-student-content* relations in the educational process. Rotating this triangle, we use it as a drill-tool to emerge the local socio-technical regimes.

The trainers were divided in four teams of two or three working in parallel at the three locations. They were the ones implementing the intervention, assuming the role of co-designers of the course as they teach it to their students and as they experience it as a *teacher-student* relationship in the triangle. Meanwhile, they become co-researchers as well, because, as they provide the formative assessment of their students, they collect first-hand data regarding the *student-content* relation in the didactical triangle and regarding the present *context*, known also as ‘milieu’, or the fourth element of the triangle (Westbury, 2000: 31).

The unity of teaching and learning process in the course (=the actual training) was further presented and explicitly reflected by the trainers within their domestic

academic communities. This reflection referred mostly to the *student-teacher* relationship as a stimulus for discussions, followed by a moderated science café around the didactical triangle. On the one hand, the content was provisionally set aside as we intended to discover the possibilities for dissemination, and see if our approach to design of the course as experienced by trainers (and students) might be considered an opportunity for a change and a practical improvement of the educational process on a daily basis. But on the other hand, ecopreneurship as content was discussed in terms of its characteristics that challenge the HE system: this is a practically oriented field, a relatively new concept, a dynamically changing field, new to Bulgaria, multidisciplinary knowledge existing within various socio-technical networks.

Thus, with time, at every stage of the research, the triangle was rotated and we spirally immersed deeper into the local realities, discovering also the willingness and readiness of the otherwise rigorous scientific ethos to update, renew, transform and learn. Therefore, we intend to understand and reflect the possibilities and challenges for creating ‘free space’ for transitions toward sustainability within the socio-technical regime of Bulgarian HE.

## **5.2. The experimental trainings: Design of the intervention**

Since education, as we have said earlier is above all development of a *process*, i.e. of a complex dynamics of educational activities, problematized situations and events of experience, we are now going to discuss certain aspects of the content relating to the course as an intervention and its design, and how these aspects have been operationalized.

### *5.2.1. Student-Teacher relations*

We conducted a combined approach to the curriculum design as we divided the course into five phases. Although the training was too limited in time (approximately ten weeks duration), our design was lined up around various didactical realities in each step. For example, we had different engagement of the actors involved in the process (trainers, students, mentors from the business community and other stakeholders from the academic and more distant learning environments), assigning different roles and relationships between students and teachers and between the students themselves; we also had a variety of styles (in the design) of learning tasks. Furthermore, we have built the curriculum, setting up a diverse emphasis on the educational content in accordance on which phase the training has been.

Hence, our layered design included the following phases: 1) phase for group cohesion development, initial assessment and joint goal-setting – or the *personal relevance* as referred to in Toohey’s classification, which was close to an andragogical approach; 2) phase of enhancing a deeper understanding of basic concepts through experience, and raising essential no-single-right-answer questions – which was the phase of meaning-making of the main ideas during an interactive student-centered teaching – or a *cognitive approach*, combined in some of the sessions

with *system-based approach*, as the students meanwhile also train particular isolate practical skills relevant to the field; 3) phase of immersion in the actual field, active learning of the content through research on authentic problems – related to more constructivist approach; 4) learning by doing a desired type of project (analytical: research, practical: start-up concept, or complex: portfolio) – *performance- and system-based approach* as Susan Toohey puts it; 5) an open event for actual product performances – or a showcase, targeting the academic scene, labor market or the real business environment.

### 5.2.2. Teacher-Content relations

Now a few words on the process of re-constructing the ecopreneurship-relevant content into a curriculum: Our understanding of ecopreneurship is based on the relationship and interdependence between the three concepts of *innovations*, *sustainability*, and *entrepreneurship*. From our point of view, ecopreneur is innovation promoter (not merely an inventor) who stands high on the scale of creativity and has innovative potential. At the same time, ecopreneur is also a manager or supervisor high on the business-skill scale, meaning that he would not be satisfied with just supplying some alternative products to a narrow niche in the market access. Like Stefan Schaltegger, we differentiate ecopreneurs from so-called ‘alternative actors’, ‘bioneers’ or environmental managers and administrators (Schaltegger, 2002).

Ecopreneurship is a relatively new business practice, especially in Bulgaria, so anybody could call themselves ‘entrepreneur’ or ‘ecopreneur’. Nevertheless, sustainable entrepreneurship does intensely change as a result of recent technological developments, research, and inventions – achievements of various areas. According to our competency model developed by experts, ecopreneurship can be viewed only as an interdisciplinary theme/subject, as it contains basic, managerial and specific competencies for the fields of social sciences, economics, ecology, engineer sciences, law, etc., and environmental preferences are viewed as personal concerns of the individuals and afterward concerns of the companies.

These mutually cross-joining fields can clearly be seen in another triad, which is the popular conception of the triple-bottom line framework. It appears as three overlapping circles: *people-profit-planet* or social, market and environmental performance of enterprises. The three areas refer to the fields of the various studies mentioned above. Sustainability sets in between these circles. Nevertheless, when we complimented the triple-bottom line with the known sustainability strategies – *sufficiency*, *efficiency*, and *consistency* (Huber, 1995), we find it incomplete without consideration of *technologies*. So for the purpose of the course, we updated it to a tetrad framework. With the technologies in, our previously triple- looks now like a four-leaf clover, as we have, in one direction, *society* and *environment*, and *technologies* and *market*, in the other one. Moreover, as we conduct the planning of the course, according to our backward design approach and the *Understanding*

by *Design*<sup>TM</sup> framework, we consider as our starting point those transferable goals, which are relevant from the field to field and those desired results that would last long and would have a profound impact upon the learner. So we choose to handle this level through the competencies. Since each competency has three cores/nucleuses which are *knowledge*, *skills*, and *attitudes/values*, we distinguish them in two groups (or clusters): knowledge+skills, on the one hand, and values+attitudes, on the other hand.

### 5.2.3. Student-Content relations

As a whole, the *competencies* are the building elements of the cognition aimed by the learning process or competence at an individual level. During the design of the training as we looked at the tetrad, we identified the opposite standing market and technology as mostly containing the narrower understanding of the concept of competencies, which were the cluster of the *knowledge/skills* cores, whether the axis society-environment comprised the *values/attitudes* core. A well-defined assessment of the formation of a person's competence was integrated within the learning events during the process and made clear to the learner.

We rely mostly on the ways such (personal) cognition would be applicable according to one's beliefs and value system (which is strictly individual as well) within any variable context (which is unpredictable). We believe that the process of formation of any competence is essentially educational, whether it occurs in formal or informal settings, whether it is intentionally designed or proceeding by intuition, externally constructed or self-directed. Hence, involving the students in a specially design session of a joint competency-based setting of goals and learning objectives, and handling them with the competencies as model/instrument, we assume that their willful and self-directed learning and development would only begin during the course, and it would continue in the future – in the same or any other fields of human activity. Thus we intend to create dynamics within the competency (i.e. between the nuclei of knowledge, skills and attitudes) and binding competence with the personal *value system*. Beyond the cognition and the meta-cognitive abilities of a person, we consider that individual attitudes are more likely to turn into actions if that person evaluates them as positive; if significant others expect such actions; and when the person finds them effective to proceed (they seem rather easy according to the desired outcomes).

During the course, the learning plan of the sessions gradually changed from more structured to non-structured (or self-structured) ones, whether, with time, the assessments evolved from widely defined to more detailed; and the inquiry got more specifically designed, standardized, and yet personalized and methodologically supported.

When visualized the architectonical model of our course design looks like a rocket. In this sense, we boldly play with that and the idea of transformation towards sustainable development as being 'launched' in the nest of the HE in Bulgaria.

## **6. Main findings**

In order to find out how is it possible to foster transition toward sustainable economy within the social-technical regime of HE in Bulgaria we first sought to identify its specific path-dependencies, existing institutionalized processes of knowledge transfer, decision-making, infrastructures, relationships and networks with businesses and public authorities. Boyadjieva (2012) summarizes the current situation as follow: ‘...Bulgarian higher education is in need of elaboration of strategic vision and new normative framework. It also needs changes, such as: establishment of a new governance model and a new model of financing of higher education; strengthening the relationship between teaching and research; development of the capacity of higher education institutions for innovative and strategic thinking; diversifying the system of higher education; development of strategic partnerships between higher education institutions and between the latter and non-academic partners’ (Boyadjieva, 2012: 88).

Applying the PAR approach within different settings, although in a similar disciplinary scope, we found that we were able to influence in many ways the outlined weak points. First, the involvement of the faculty members (and through them - students, practitioners, and civil society members) within an extensive process of reflection and analysis intensified the communication processes within their community and improved their capacity for critical self-reflection, strategic thinking and governing within the present institutional context. Second, through the educational intervention, which was a new experience not only concerning its inter- and transdisciplinarity but also as a methodology of instruction, we were able to observe increasing interest in self- and peer- competency level assessment by learners and trainers. Third, the involved staff took initiatives to sustain and proceed with proposed actions in different ways. Thus, they have affirmed that the new local networks and niches are before all a resource for bringing research and teaching closer together. Further, they gain a competitive advantage within the institutional setting and last, but not least the newly established networks are a strong motivational boost for students to get involved and learn within the local environment. Such new positioning among the activated stakeholders also put the educators on the spot and bring new forms of governance and diversification within the HE.

Therefore, we summarize two pathways the PAR indirectly impacts the university settings and leads to improving the educational outcomes. One pathway is through creating incentives (through the intervention) and conditions through reflection within the community) so the professionals could actively communicate and analyze their experiences in this community, and further to increase the level of competence (jointly assessed and aimed) of academic staff to teach and of students to actively learn. The other pathway is through creating niches for experiments that bring together academics, practitioners, students, and of course local communities and authorities, together for networking, mutual learning, cooperation, and trans-

fer of new fields of knowledge, experience, and attitude. The inter- and transdisciplinary learning process should be situated in such *close-to-real-world* settings (designed as for research and redesigned as for education). We need to settle this re-construction within the ‘real world’ and obligatory to proceed a reflection on the situation as experienced by the learner, so he/she can truly learn, and eventually develop through that; because neither the experiences in real-life laboratories alone, nor does instruction alone produces a profound learning.

Upon seeing a lot of constraints, we cannot predict that the generated enthusiasm would last long. Although this approach and the design gave positive results, effects can be expected only on a conceptual level (due to lack of proper means for applied science - enough funding and up-to-date equipment for research, for example, for a creation of a prototype of technological innovation), and they could only be local (due to the centralized regulation, strategies, and policies that do not allow more autonomy).

### **6.1. Institutional settings and academic ethos**

The extensive reflection of the institutional settings and state of the art of research and education of the involved universities was essential part of our approach. Starting point was their comparison, according to the Bulgarian University Ranking System. We have analysed the results in the area of economics (within the project, we have worked mainly with members of economics faculties). The Academy of Economics in Svishtov is at the 7<sup>th</sup> position, the University of Ruse at the 8<sup>th</sup>, and the University of Food Technologies at the 12<sup>th</sup> in the general ranking of all 17 Bulgarian universities offering courses in Economics.

Further, we have looked closely at their score according the following six indicators: Learning process (LP), Research (R), Learning environment (LE), Prestige (P), Labor market integration (LMI) and Service & Administration quality (SAQ), composing the general ranking and comparing the first ten universities. Only in two criteria, our cases showed good results: the *University of Ruse* with its excellent learning environment and infrastructure and the *University of Food Technologies* in Plovdiv with its qualitative Service & Administration. Concerning Learning process and Research quality the *University of Ruse* and the *Academy of Economics* in Svishtov are right behind the three leading universities (the *University of Sofia*, the *American University* in Blagoevgrad and the *University of National and World Economy*, Sofia). Thus, we can conclude that our three cases are at an average domestic level, as follows: *University of Ruse*: LP-4, R-5, LE-2, P-10, LMI-9, SAQ-5; *Academy of Economics*, Svishtov: LP-5, R-4, LE-6, P-6, LMI-7, SAQ-6; *University of Food Technologies*: LP-10, R-8, LE-7, P-9, LMI-10, SAQ-3.

In our research, we have strived not only to reproduce the current situation in the Bulgarian HE, but also to go deeper into the ‘lifeworld’ of the involved stakeholders. Taking the path-breaking study of Boyadjieva (2012) about the development of HE in Bulgaria and the main principles and values that guide the university in-

stitution: 1) academic freedom, 2) academic autonomy, 3) personal achievements, measured by universalistic criteria, 4) scientific rationality, and 5) academic fellowship – we wanted to experience and understand the everyday practice of teaching and researching at these particular cases.

From the in-depth interviews and focus group discussions, we came to the conclusion, that, at least in our cases, research and teaching do not relate in a sufficient manner. University staff is overloaded with teaching and administrative duties, while research is more or less an individual activity and responsibility. The academic freedom is too often realized and practiced as ‘anything goes’. There is a high risk of the arbitrariness of personal choices and ambiguity of institutional rules and practices.

Regarding academic fellowship, it is often practiced by the researchers limited within their departments/disciplinary areas. It is not uncommon that our respondents do not even know their colleagues from other departments or faculties. The personal achievements of a scientist in the course of his/her development often depend on own affiliations and personal relationships within the institution and not rather on universalistic criteria or institutional and career development rules. The academic life limited within a particular department and to a reduced and earlier defended discipline, or even to a single subject with its relevant theories and scientific rationality, commonly clashes when meeting the ‘rationality’ of the practitioners. The stakeholders speak different languages, and there is a necessity of a mediator or an ‘interpreter’ between the lifeworlds. The academic autonomy in such cases is rather a matter of ‘academic self-sufficiency’.

In such academic environment, the students experience difficulties to advance their own beliefs/opinions, to openly discuss and experiment. Thus, the passive mentality – a habitually obtained mainly from the high school, is prevailing: the student is a passive knowledge consumer and a reproducer of facts and academic ‘truths’ provided by a lecturer. As of his/her part, the student formally performs to demands within the institution. The university administration inertly executes via the institutional status quo. Not surprisingly, there is a well anticipated intergenerational shift between students and academic staff. A self-confirming statement circulates: that students are unmotivated, illiterate, irresponsible and not willing to learn. Partly it might be true that the quality of the high school has declined, and the new students are mostly from rural regions, but somehow it lies on the related academic ethos. Certainly, the students are not a homogeneous group, and they are in a broad range concerning their entry level of education and their motivation. The older generation of teachers adheres to approved in the past precise academic etiquettes; while the youngest tend to shorten the distance between themselves and the students but often find that the line between what would be perceived as informal relationships and a liberal style is very thin. So the students often try to take advantage of that. We noticed that most of the young and yet more experienced

teachers try to look for alternative ways to reach their students realizing that they are a new and different generation which deal with information, think, live their life and learn uniquely.

Within the described institutional setting and academic ethos, new terms like sustainability are often used only as an etiquette to be put on the old content. Thus, the form is prevailing over the content.

### **6.2. The field (of ecopreneurship) as educational content**

In what relations are the field of sustainable entrepreneurship and the sustainability as educational content; can they encompass one another, and how?

As a concept, sustainability is indeed highly legitimate and presented in media. The 'environmental' messages have permeated everyday life and the green-coded marketing on a daily level. Almost all political parties have their statements on it, but as an actual policy, it remains more or less an 'empty shell'. The mere fact that there is no single agency or government institution responsible for the implementation and coordination of national policies regarding the principles of sustainable development is very illustrative. A National Committee for Sustainable Development was planned in connection with the pre-accession process to the EU-membership but it never started working. Moreover, there is no unified national strategy for sustainable development. The last document in this context is a proposal for such a strategy, published back in 2007, probably as a requirement for the EU accession. At least some sectoral strategies for sustainable development in tourism and agriculture have indeed been passed. But this again is evidence that sustainability in Bulgaria is ill-conceived, generally misunderstood and, at an institutional level, fragmentarily implemented.

In terms of sustainability education in Bulgarian HE institutions, there are currently some educational offerings mainly in the field of environmental management, RES technologies, etc. in addition to the "traditional" ecology and environmental protection, but there is no training on ecopreneurship or sustainable entrepreneurship as a separate academic course. There are indeed some separate academic disciplines dealing with the issues of sustainability and sustainable development, with their various focuses determined by their different disciplinary premises (economics, engineering, natural sciences, etc.) Such courses (either bachelor or master level) are conducted mainly at the universities in Sofia, Plovdiv, Svishtov, Ruse and Varna. We have interpreted this empirical finding as an indicator of a hard and rigid disciplinary boundary thinking. The field of ecopreneurship is covered by complementary disciplines and scientific areas. Sustainability is an ideological conception with supra-disciplinary, global, cultural, and civilizational status. But, when extremely critically viewed, the scientific areas appear fragmented, parcelled and occupied by assemblies within the universities. Who's disciplinary field should be entitled to host sustainable entrepreneurship? This question remained rhetorically not answered during our focus groups because certainly the training

could not be reduced to the frame of one research or teaching community. Within a structure of a single-discipline course, it could only be presented as a particular case of that discipline, within a voluntary course, and if a teacher has initiated such course in first place and if approved at the level of the department, and then by the faculty council. By contrast, such courses could be easily offered by any NGO – for instance, we found one informal three-month training in sustainable entrepreneurship, organized by *Junior Achievement Bulgaria* and targeting secondary schools ([www.jabulgaria.org](http://www.jabulgaria.org)).

The faculty members who were our co-researchers in the PAR got inspired to take actions on their own: For instance, the team in Svishtov saw an opportunity to take a competitive advantage in assigning the subject of ecopreneurship within the habitual for their academic community disciplinary parceling; in including the course in their Programs for Postgraduate qualification; or in organizing an own optional (so-called ‘facultative’) course in ecopreneurship. Prior micro-designing the intervention and planning the course this team thought the had no related to the content partners or companies/professionals. Later, during the training, they chose excellent mentors among the professionals that they knew who have cooperated very effectively in the learning process. In Plovdiv, the team reemphasized their belief in the significance of the relationship with the industries and considered ways to regulate and systematize these relations - both, as a database and a way to strengthen and revitalize the relationships with non-academic partners. It was their initiative to propose a new MA program in Ecopreneurship together with the ISSK-BAS, which was supported by the offices during the preliminary meetings on that matter. Our team in Ruse had announced the course as a „Masterclass in Ecopreneurship“. Inspired PhD students were attracted to its next conduction as tutors and co-trainers. During the focused reflection their faculty colleagues admitted that they were eager to renew student-centered approach, in which efficiency they had been previously convinced; to resume their supra-disciplinary dialogue, and to strengthen the existing Center for Entrepreneurship as setting it now into a sustainable direction. They also agreed on the necessity of ‘reviving’ the educational content; and moreover, this academic community discovered that, besides being dynamic, the educational content should overflow the curriculum into the university life beyond the scheduled classes, and this should happen through university club forms, the Students Council, the Center for Career development, etc. Thus, ecopreneurship serves as more than just educational content - it becomes an occasion and instrument for releasing free spaces. It is now some teachers’, students’ and managers’ personal cause.

### **6.3. HE and the practitioners**

Our findings are undermined with the latest World Bank report (World Bank, 2016) concluding a huge discrepancy between the educational outcomes and the expectation of the labor market. According to that the Bulgarian employers find

skills insufficiency to be the main cause of the difficulty in filling jobs vacancies of HE graduates. The lack of technical expertise is reported by 60% of the companies, which is almost twice as high compared to the global average. The lack of soft skills is reported by 20% of the companies, which is twice as high as the European average (World Bank, 2016).

Another global study emphasizes even more the importance of soft skills: according to an analysis of 2.3 million LinkedIn profiles for The Wall Street Journal between June 2014 and June 2015 ‘nearly 58% of employees who touted stellar communication skills were hired over the course of a year’. The general conclusion is that employers are increasingly looking for workers with strong soft skills: communication (topping the list), organization, teamwork, punctuality, critical thinking, social skills, creativity, interpersonal communication, adaptability and having a friendly personality (The Wall Street Journal Blog, 2016).

We are doing this association because the labor in the global economy gradually becomes more automated, and the role of the services becomes more cardinal; but nevertheless, the workforce in Bulgaria is very cheap; - it is an outsourcing destination for large enterprises and a locality for routine labor; or as a head of a faculty puts it: ‘Why (the economy of) Germany is pulling upwards – because their headquarters are on the spot, they can afford R&D. Look at Bulgaria – it is ‘pouring’ factories-doers: headquarters versus production. If I teach a student to [be able to] think (critical, analytical, creative thinking), he will be eager to think, to explore, and to develop; and if there are no any headquarters around, he could find himself either in a factory (as an operator), or at the Terminal 2 [referring to ‘external lines’ at the airport].’ As a matter of fact, our respondent used the term G.H.Q literally, when talking about companies’ headquarters for research and development. Investments as a topic are very popular in the public and political talk, but among the academic community we found diverse understanding about it whether an investment of 100 million euros is made for the company (in given region) or it is done in the particular region, and a loud announcement about 300 new employees hired, e.g. in an impoverished district, says nothing about their wages. One of the teachers in Business and Finance called that phenomena neo-feudalism. Apparently, not many of the educated Bulgarians chose a third pathway (which is not to become doers or migrants) – the path of entrepreneurship. A survey of the Global Entrepreneurship Monitor shows that it is in the last place in Europe on the share of entrepreneurs in the working population<sup>2</sup>).

It appears that some of the faculty staff have their positive experience and interaction with big companies, which alone have own policies for training and HR development. Others find that the SMEs to be their ‘real allies’, because these businesses are domestic, autonomous, their managers exercise their freedom in decision taking – which makes them preferable partners. A third group has been focusing on maintaining close and solid professional relationship with the university’s alumni.

According to the design of applied training, we were interested in the field of emerging sustainable entrepreneurship in Bulgaria as more distant from the university – a learning environment that is full of cases suitable to be studied subjects, resources, and advisors/mentors. We identified not only entrepreneurs but also managers; and not only pioneers in the ecological niche but those who promote/have duties regarding CSR, environmental administration, or environmental management. As we were discussing the design of the training and the role of the practitioners with those who we indignified among them, the communication did not occur by itself. Although sharing a similar view over the project objectives and on the nature of educational processes, as we involved them in a premeditated methodologically considered interaction with the students, it was successful mostly if our access to them was a matter of already existing informal relationships (with a person from the staff), and if they already had enhanced confidence and personal motivation to cooperate. However, many organizational and logistical issues during the training were determined around the convenience of these people and capability over their schedule to give time for the course in ecopreneurship. Most of them are open for further interactions, but the initiative call remains on the educators' side.

After all, freeing spaces for experimentation and mutual learning within the existing institutionalized processes of knowledge transfer, decision-making, infrastructures, and networks between universities, businesses and public authorities, singly depends on human will and relationships – on establishing trustful contacts and vital interrelations between different communities (and respectively, stakeholders). On the contrary, there are also some negative side effects caused by the closed informal affiliations as they start to dominate the decision-making process within weak institutional frameworks. We often witness such interferences, which morally corrupt the public, professional and political life in Bulgaria, together with the phenomena of low competence level, short-sightedness, nepotism, lust of power, etc.

## **7. Conclusion**

How is sustainable development and innovation in higher education possible? We sought the answer to this question through realizing an unorthodoxly designed course in ecopreneurship as an intervention within a Participatory Action Research. It is possible: through networking and a (purposefully designed) process of mutual learning, settled and hosted by the universities – through policies of opening and embedding the educational settings within expanded learning environment, and restoring the triple helix with its stakeholders and their resources, real-world issues and interests.

Indeed, despite the stakeholders' different interest or ethos, it is necessary for niches within the academic life to be created, so the higher education system could

address and mediate those differences. Competencies are up to certain degree a suitable operating instrument for communication between different stakeholders and for assessment of expected outcomes. The proposed approach on the example of the transdisciplinary course in ecopreneurship showed that the higher education in Bulgaria is capable of accommodating transitions toward sustainability and innovation more likely at local operational and conceptual level. Most importantly, the students' role should be specially defined, understood and communicated. We see students as the loop to break up the vicious chain, if as learners and (future) agents of sustainable development, or 'creative destroyers' of old dead-ending paths have new experiences and adventures, real-world challenges, and project-based and problem-solving tasks within their safe learning process. They should also have the opportunity to present themselves and their learning products/results publically or to professional communities.

Finally, the proposed research is a small step and should be seen more as an experiment initiating local actions and creating free spaces to bring academics, practitioners, students, and of course local communities and authorities, together for networking and mutual learning. As Ulrich Beck stated back in 1986, the future was uncertain and risky, but we should choose such ways of development which do not close the path to it but turn *the process of modernization* into a *process of learning* (Beck, 2013: 316). We believe that these initial actions could be an alternative for the current complicated Bulgarian situation. Moreover, considering the uncertain national realities amid the critical circumstances over the global warming and environmental changes worldwide, such effort could be (further) ensured through intentional and methodologically grounded worldview-altering process – i.e. to create educational settings enhancing more powerful experiences toward *transformational learning* (versus informative learning), in which the learners rethink the way they see *themselves* and their world (Baumgartner 2001: 16), their values, and beliefs – and subsequently (re-)think on economy or sustainability.

**Acknowledgement.** This paper was presented at the 2016 International Sustainability Transitions Conference: Transformative Science, Transition Labs and Experiment, held September 7<sup>th</sup> - 9<sup>th</sup> in Wuppertal, Germany, on the behalf of the Institute for the Study of Societies and Knowledge at the Bulgarian Academy of Sciences, and has not been published elsewhere.

Despite that the study was in the framework of (policymaking in) HE in Bulgaria, with this message we shed light on the educational sciences to the Sustainability Transitions Research Network (STRN) along with other fields of the scientific community, stressing on the particular role of Educational design (also known as Instructional design) in the processes of sustainable transitions and development, and also on its value within the Transformative sciences.

## NOTES

1. <http://www.topuniversities.com/>
2. GEM 2015/16 Global Report (available on <http://www.gemconsortium.org/report>, last accessed on 16.08.2016)

## REFERENCES

- Andreev M. (2015). *Thought on Education*. Sofia: Iztok Zapad [in Bulgarian].
- Banathy, B. H. (2010). *Instructional System Design*. In: Gagné, R. M. (ed.) *Instructional Technology: Foundations*. New York, London: Routledge.
- Baumgartner, L. M. (2001). *An Update on Transformational Learning*. In: Imel, S., Merriam, S. B. (eds.) *The New Update on Adult Learning Theory: New Directions for Adult and Continuing Education*. San Francisco: Jossey-Bass, pp. 15 – 24 (available on <http://www.questia.com/read/117494694/the-new-update-on-adult-learning-theory-new-directions>, last accessed on 16.08.2016).
- Beck, U. (2013). *Risikogesellschaft Auf dem Weg in eine andere Moderne*. Kritika i humanizam [in Bulgarian].
- Bergold, J. & Thomas, S. (2012). *Participatory Research Methods: A Methodological Approach in Motion* [110 paragraphs]. Forum Qualitative Sozialforschung / Forum: Qualitative Social Research, 13 (1). Art. 30 (available on <http://nbn-resolving.de/urn:nbn:de:0114-fqs1201304>, last accessed on 16.08.2016).
- Boyadjieva, P. (1998). *University and Society: Two Sociological Cases*. Sofia: LiK Publishing House [in Bulgarian].
- Boyadjieva, P. (2006). *Lifelong Learning, or the “And” of Second Modernity*. In: Grekova, M., Kabakchieva, P. (eds.) *Beyond disciplinary “self”-restrictions*. Sofia: St. Kliment Ochriski University Publishing House, pp. 84 – 105 [in Bulgarian].
- Boyadjieva, P. (2012). Higher Education and the Rating System for Higher Schools in Bulgaria: Condition, Problem, and Perspectives. In: *Bulgarian Journal of Science and Education Policy* (BJSEP), Vol. 6 (1), pp. 5 – 88 [in Bulgarian].
- Bulgarian Ministry of Education and Science. *Bulgarian University Ranking System* (available on [rsvu.mon.bg/rsvu3/?locale=en](http://rsvu.mon.bg/rsvu3/?locale=en), last accessed on 16.08.2016)
- Bulgarian Ministry of Environment and Water (2015). *National Report on environmental situation and protection*. Sofia (available on <http://eea.government.bg/bg/soer/2013>, last accessed on 16.08.2016)
- Competence Assessment Information System (available on [www.mycompetence.bg](http://www.mycompetence.bg), last accessed on 16.08.2016)

- Clark, M. & Wawrytko, S. (1990). *Rethinking the Curriculum: Toward an Integrated, Interdisciplinary College Education*. New York Westport, Connecticut London: Greenwood Press.
- Cohen, L., Lawrence, M. & Morrison, K. (2005). *Research Methods in Education*. 5<sup>th</sup> edition. London & New York: Taylor & Francis e-Library.
- Davidson, K. (2016). *The 'Soft Skills' Employers Are Looking For Communication, teamwork, punctuality and critical thinking are in high demand, an analysis of 2.3 million LinkedIn profiles shows*. In: Wall Street Journal (available on <http://blogs.wsj.com/economics/2016/08/30/the-soft-skills-employers-are-looking-for/>, last accessed on 30.08.2016) .
- Delibaltova, V. (2004). *About Instruction: Between the 'existent' and the 'designed'*. Sofia: LiK [in Bulgarian].
- Dimova, D. (2013). *Instructional Design*. Sofia: St. Kliment Ohridski University Publishing House [in Bulgarian].
- Dnevnik. *Bulgaria with the least entrepreneurs in Europe* (article), 15.02.2016 (available on [www.dnevnik.bg/tehnologii/2016/02/15/2704738\\_bulgaria\\_ima\\_nai-malko\\_predpriemachi\\_v\\_evropa](http://www.dnevnik.bg/tehnologii/2016/02/15/2704738_bulgaria_ima_nai-malko_predpriemachi_v_evropa), last accessed on 16.08.2016)
- European Commission. 2014. *Macroeconomic Imbalances Bulgaria 2014*. European Economy Occasional Papers 173, Brussels (available on [http://ec.europa.eu/economy\\_finance/publications/](http://ec.europa.eu/economy_finance/publications/), last accessed on 16.08.2016)
- European Environment Agency. 2008. *Energy and Environment Report 2008*. EEA Report, No. 6.
- Gerlach, A. (2003). *Sustainable Entrepreneurship and Innovation*. In: *Conference Proceedings of Corporate Social Responsibility and Environmental Management Conference 2003*, Leeds.
- Huber, J. (1995). *Nachhaltige Entwicklung: Strategien für eine ökologische und soziale Erdpolitik*. Berlin: Ed. Sigma.
- Kirov, V., Markova, E. & Peycheva, D. (2013). *Action Research: An Example of Adapting and Applying Active Sociological Surveying in Bulgaria*. *Sociological Problems*, pp. 1 – 2, 67 – 90 [in Bulgarian].
- McClelland, D.C. (1973). *Testing for competence rather than intelligence*. In: *American Psychologist*, Vol. 28, pp. 1 – 14.
- Molhov, M. (2004). Cognitive Possibilities of 'Warm' Sociology. In: Atanasov, A. et al. (eds.) *Sociological Surveys of Social Reality: Approaches, Methods, Organization, Problems and New Solutions*. Sofia: Marin Drinov Academic Publishing House, pp. 137 – 144 [in Bulgarian].
- Petkova, K. (2003). *Attitudes and Behavior. Can we Predicts Human Behavior?* Sofia: Institute of Sociology.
- Rip, A. & Kemp, R. (1998). Technological change. In: Rayner, S. Malone, E. L. (eds), *Human Choice and Climate Change*, Vol. 2. Columbus, OH: Battelle Press, pp. 327 – 399

- Sabatier, P. & Jenkins-Smith, H. (1993). *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, Co: Westview.
- Sachs, W. (1999). *Planet Dialectics: Explorations in Environment and Development*. London: Zed Books.
- Schumpeter, J. (1912). *Theorie der wirtschaftlichen Entwicklung*. Berlin.
- Schaltegger S. (2002). A Framework for Ecopreneurship: Leading Bioneers and Environmental Managers to Ecopreneurship. In: *The Journal of Corporate Environmental Strategy and Practice*, Vol. 38, pp. 45 – 58. Greener Management International.
- Toohy, S. (1999). *Designing Courses for Higher Education*. Philadelphia: Open University Press (available on <http://www.questia.com/read/119542514/designing-courses-for-higher-education>, last accessed on 16.08.2016).
- Varbanova, A. (2013). *Design of an Educational Modul on the Case of the Historical Reflection of the Transitions towards Democracy in Bulgaria* (MA's thesis, unpublished). Sofia: St. Kliment Ohridski.
- Westbury, I., Hopmann, S. & Riquart, K. (2000). *Teaching as a Reflective Practice: The German Didaktik Tradition*. Mahwah, NJ: Lawrence Erlbaum Associates (available on <http://www.questia.com/read/28547681/teaching-as-a-reflective-practice-the-german-didaktik>, last accessed on 16.08.2016).
- Wiggins, G. & McTighe, J. (2011). *The Understanding by Design Guide to Creating High-Quality Units*. Alexandria, VA: ASCD.
- Wiggins G. & McTighe, J. (2012). *The Understanding by Design Guide to Advanced Concepts in Creating and Reviewing Units*. Alexandria, VA: ASCD.
- World Bank. (2016). *Skills for Work in Bulgaria. The Relationship between cognitive and socioemotional skills and labor market outcomes*
- World Bank (2016) *Skills for Work in Bulgaria: The Relationship between Cognitive and Socioemotional Skills and Labor Market Outcomes* (available on <http://www.worldbank.org/en/country/bulgaria>, last accessed on 16.08.2016)
- World Bank-Bulgaria (2016) *Partnership Program Snapshot* (available on <http://www.worldbank.org/en/country/bulgaria>, last accessed on 16.08.2016)
- Zampetakis, L. A., Thrassyvoulos, M. & Moustakis, V. (2006). *Greening the Entrepreneurship Syllabus: An Exploratory Approach*. *Environmental Engineering and Management Journal*, Vol. 5, No. 2, pp. 135 – 144.

✉ **Ms. Anna Varbanova, Assist. Prof.**

Faculty of Pedagogy

University of Sofia

1504 Sofia, Bulgaria

E-mail: [anna.varbanova@fp.uni-sofia.bg](mailto:anna.varbanova@fp.uni-sofia.bg)